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EXAMINER	
REKSTAD, ERICK J	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/821,648	GENG, ZHENG J.
	Examiner	**Art Unit**
	Erick Rekstad	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 16-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 16-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

This is a Final Action for application no. 09/821,648 in response to the amendment filed on July 5, 2005 where in claims 1-14 and 16-44 are presented for examination.

Response to Arguments

Applicant's arguments filed 5 July 2005 have been fully considered but they are not persuasive. In regards to the applicants arguments related to the rejection of claims 1-6, 14 and 16-23, the applicant argues that Glatt does not teach the "mapping of pixels from an omnidirectional image into a perspective window as claimed. Rather, Glatt is merely teaching selecting or fetching specific pixels, without any mapping, distortion correction or other processing, to simulate panning and tilting." As shown in the previous Office Action, Nayar teaches the mapping from the omnidirection (which is hemispherical) to cartesian coordinates using calculations (Col 11 Lines 7-9). Nayar is lacking the use of look-up tables for the mapping. Glatt teaches the mapping from a fish-eye lens (which is hemispherical) to catesian coordinates using a look-up table (Col 8 Lines 28-43). As taught by Glatt, this mapping is in order to present an image as if it had been formed by the panning and tilting of a normal camera (Col 8 Lines 40-43). As omindirection and fish-eye lens are both hemispherical it would have been obvious to adapt the look-up table of Glatt to be used by Nayar in order to display an image as if it had been formed by the panning and tilting of a normal camera as taught by Glatt.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by

combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as shown above, both Nayar and Glatt teach the conversion of pixels from a hemispherical image to a normal camera image. Therefore it would have been obvious to one of ordinary skill to use method of look-up tables as taught by Glatt in order to simplify the mapping in Nayar.

In regards to the applicant's specific argument related to claim 2, the look-up tables of Glatt are used only to present that it was well known in the art to use look-up tables in order to map pixels from a hemispherical image to a normal camera image. By using this known technique the calculations used in Nayar could be simplified by the use of look-up tables. Therefore the look-up tables would be based on the configuration parameters of Nayar.

In regards to the applicants arguments related to claim 14, the applicant argues "Gabriel does not teach or suggest anything regarding omnidirectional images and, consequently, cannot teach the claimed memory with mapping matrix for mapping pixels from an omnidirectional image to a perspective viewing window." Gabriel teaches the use of simple matrices used to perform complex warping of images such as to a fish-eye image (Col 4 Lines 24-67). The ability of Gabriel to convert from a normal image to a hemispherical image would inherently mean that the use of the matrices may

be used to convert from hemispherical image to a normal image, as such in operation would be the inverse of the warping. Again, as with Glatt, Gabriel is used to show a known method in the art for converting pixel coordinates. Therefore it would have been obvious to one of ordinary skill in the art to use the simple matrices of Gabriel in order to produce the complex transformations of Nayar without processor intensive calculations.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,118,474 to Nayar in view of US Patent 5,870,135 to Glatt et al.

[claim 1]

Nayar teaches the method for generating a selectable perspective view of a portion of a hemispherical image scene, comprising the steps of:

Acquiring an omindirectional image on an image plane using a reflective mirror that satisfies a single viewpoint constraint and an image sensor (Col 9 Lines 49-53);

Defining a perspective viewing window based on configuration parameters (Col 7 Lines 62-65 and Col 10 Lines 56-65);

Mapping each pixel in the perspective window with a corresponding pixel value in the omnidirectional image on the image plane using the configuration parameters (Col 10 Line 55-Col 11 Line 55 and Col 12 Lines 25-35).

Nayar does not teach the use of a look-up table based on the configuration parameters.

Glatt teaches the use of a look-up table for storing pixel for displaying a non distorted sub image of an original hemispherical image. The look-up table allows for the pixels corresponding to those calculated coordinates to be fetched and displayed as if the image had been formed by the panning and tilting of a normal camera (Col 8 Lines 25-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Nayar with the look-up table of Glatt in order to display an image as if it had been formed by the panning and tilting of a normal camera as taught by Glatt.

[claim 2]

Nayar further teaches the method of claim 1, wherein the configuration parameters defined in the defining step include at least one of a zoom distance defined as the distance from the focal point of said reflective mirror to said window, a pan angle defined as the angle between the x axis and a line through the focal point of said reflective mirror perpendicular to the x-y plane and a tilt angle defined as the angle between the x-y plane and a vector normal to said window (Col 10 Lines 55-65).

[claim 3]

Nayar further teaches the method of claim 2, wherein the defining step is conducted via a user interface through which a user enters data corresponding to at least one of a desired zoom distance, pan angle, or tilt angle (Col 7 Lines 62-65).

[claim 4]

Nayar further teaches the method of claim 1, wherein the mapping step includes the step of generating a mapping matrix by:

applying a ray tracing algorithm to each pixel in the perspective viewing window to determine a corresponding reflection point on the reflective mirror; and

projecting each reflection point to a focal point of the image sensor to determine the corresponding location in the omnidirectional image on the image plane (Figs. 4, 5 and 6)

[claim 5]

Nayar further teaches the method of claim 4, further comprising the step of storing the mapping matrix in a module having a memory. (Fig. 1A item 125. Computers all have memory)

[claim 6]

Nayar further teaches the method of claim 1 wherein the step of defining a perspective viewing window defines the perspective viewing window as a panoramic viewing window. (Col 11 Lines 25-30).

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nayar and Glatt as applied to claim 1 above, and further in view of US Patent 5,790,181 to Chahl et al. and US Patent 3,988,533 to Mick et al.

[claim 7]

Nayar and Glatt teach the method of claim 1 as shown above. Nayar and Glatt further teaches the use of the system for surveillance purposes (Nayar: Col 1 Lines 25-30, Glatt: Abstract) Nayar and Glatt do not teach the use of motion detection.

Chahl, while he is not specific as to his motion detection means, clearly teaches that motion detection can be done in a panoramic surveillance system (Col 6 Lines 25-32). However, he does not specify how he does his motion detection. However, at the time the invention was made, it was well known in the art of surveillance, that in order to detect video motion, the conventional way was to compare subsequent video images and if a large enough difference in the images is detected, it is considered motion. As proof of the Examiners statements he includes Mick, see abstract.

Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art, to include motion detection capabilities of Chahl and Mick in the system of Nayar and Glatt in order to adapt it for use in the surveillance application as Nayar says it can be used for.

[claim 8]

Nayar further teaches the method of claim 7, comprising the steps of:

calculating the configuration parameters for the perspective viewing window from the anomaly;

and selectively focusing the perspective viewing window on the anomaly using the calculated configuration parameters (Col 10 Lines 32-64).

[claim 9]

Chahl further teaches the use of activating an alarm if at least a portion of the residual image exceeds a predetermined threshold (Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the alarm activating method of Chahl in order to notify security of an anomaly such as an intruder.

Claims 10-13 are rejected under 35 U.S.C. 1O3(a) as being unpatentable over Nayar and Glatt as applied to claim 1 above, and further in view of US Patent 5,686,975 to Baker.

[claim 10].

Nayar and Glatt teach the method of claim 1. Nayar suggests the use of the method for teleconferencing (Col 1 Line 26). Nayar and Glatt do not teach detecting a location of a sound source in the image scene; and adjusting the perspective viewing window based on the detected location of the sound source.

Baker discloses a teleconferencing imaging system that includes a panoramic imaging means including an audio detection circuit that can locate the source of a sound and image it (Abstract). Therefore, at the time the invention was made it was well known in the art, that imaging the source of a sound was desired, thus it would have been obvious to one of ordinary skill in the art, to include the audio detection system disclosed by Baker into the imaging apparatus of Nayar and Glatt for use with teleconferencing.

[claims 11 and 12]

At the time the invention was made, use of the internet for transmitting images was well known in the art. Once the image is processed as in the case of the current invention, data is data, therefore it doesn't matter that the image came from an omni-directional imaging means. Never the less, while Nayar and Glatt are silent on use of the Internet, Baker teaches that teleconferencing involves transmitting both the audio and video data to a remote site for viewing (Col 1 Lines 16-17).

Since teleconferencing implies use of the phone system, and access to the internet is achieved via the phone network, it would have been obvious to one of ordinary skill in the art to transmit the image via a server or any computer capable of handling the job in order to provide a suitable teleconferencing system.

[claim 13]

The method of claim 1, further comprising the step of forming a two way transmission link between the image sensor and a remote display, wherein the two-way transmission link transmits at least one of the omni-directional image, the perspective viewing window, and an audio signal. (Teleconferencing is a two way transmission link.)

Claims 14 and 16-23 are rejected under 35 U.S.C. 1O3(a) as being unpatentable over Nayar in view of US Patent 4,908,874 to Gabriel.

[claim 14]

Nayar teaches an imaging apparatus for generating a two dimensional image, comprising:

A reflective mirror configured to satisfy an optical single viewpoint constraint for reflecting an image scene (Col 9 Lines 49-53).

An image sensor responsive to said reflective mirror and that generates two dimensional image data signals to obtain an omnidirectional image on an image plane (Col 7 Lines 62-65 and Col 10 Lines 56-65); and

A controller coupled to the image sensor, wherein the controller defines a perspective viewing window (Col 9 Line 63-Col 10 Line 19). Nayar further teaches the mapping of each pixel in the perspective window with a corresponding pixel value in the

omindirectional image on the image plane using the configuration parameters (Col 10 Line 55-Col 11 Line 55 and Col 12 Line 25-35). Nayar further teaches the required transformations (zoom, pan) of the hemispherical scene to produce an image from a view point (Col 9 Lines 31-64, Fig 6). Nayar further teaches the use of a computer which is well known to contain memory (Fig. 1A item 125). Nayar does not specifically teach the memory for storing a mapping matrix for each of a plurality of sets of said configuration parameters in a parameter space, said controller using a said mapping matrix to perform mapping of pixels from said omindirectional image into said perspective viewing window.

Gabriel teaches the use of matrices to perform transformations such as translation, contraction, expansion, rotation and perspective projection (Col 4 Lines 19-30, Col 7 Lines 5-64). Gabriel further teaches a complex transformation can be produced from the product of simpler ones Col 6 Lines 29-34). It would have been obvious to one of ordinary skill in the art at the time of the invention to store the matrices of Gabriel in the memory of Nayar in order to perform a transformation without processor intensive calculations.

[claims 16, 17, and 20]

Nayar further teaches the apparatus of claim 14, wherein the mapping step includes the step of generating a mapping matrix by:

applying a ray tracing algorithm to each pixel in the perspective viewing window to determine a corresponding reflection point on the reflective mirror; and

projecting each reflection point to a focal point of the image sensor to determine the corresponding location in the omnidirectional image on the image plane (Figs. 4, 5 and 6)

[claim 18]

Nayar further teaches the apparatus of claim 14, wherein the configuration parameters defined in the defining step include at least one of a zoom distance defined as the distance from the focal point of said reflective mirror to said window, a pan angle defined as the angle between the x axis and a line through the focal point of said reflective mirror perpendicular to the x-y plane and a tilt angle defined as the angle between the x-y plane and a vector normal to said window (Col 10 Lines 55-65).

[claim 19]

Nayar further teaches the apparatus of claim 18, wherein the defining step is conducted via a user interface through which a user enters data corresponding to at least one of a desired zoom distance, pan angle, or tilt angle (Col 7 Lines 62-65).

[claim 21]

Nayar further teaches the apparatus of claim 14, wherein the step of defining a perspective viewing window defines the perspective viewing window as a panoramic viewing window. (Col 11 Lines 25-30).

[claims 22 and 23]

Nayar further teaches the apparatus of claim 14, further comprising the step of storing the mapping matrix in a module having a memory. (Fig. 1A item 125. Computers all have memory)

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nayar and Gabriel as applied to claim 14 above, and further in view of US Patent 5,790,181 to Chahl et al. and US Patent 3,988,533 to Mick et al.

[claim 24]

Nayar and Gabriel teach the apparatus of claim 14 as shown above. Nayar and Gabriel further teaches the use of the system for surveillance purposes (Nayar: Col 1 Lines 25-30, Gabriel: Abstract). Nayar and Gabriel do not teach the use of motion detection.

Chahl, while he is not specific as to his motion detection means, clearly teaches that motion detection can be done in a panoramic surveillance system (Col 6 Lines 25-32). However, he does not specify how he does his motion detection. However, at the time the invention was made, it was well known in the art of surveillance, that in order to detect video motion, the conventional way was to compare subsequent video images and if a large enough difference in the images is detected, it is considered motion. As proof of the Examiners statements he includes Mick, see abstract.

Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art, to include motion detection capabilities of Chahl and Mick in the system of Nayar and Gabriel in order to adapt it for use in the surveillance application as Nayar says it can be used for.

[claim 25]

Chahl further teaches the use of activating an alarm if at least a portion of the residual image exceeds a predetermined threshold (Abstract). It would have been

obvious to one of ordinary skill in the art at the time of the invention to use the alarm activating method of Chahl in order to notify security of an anomaly such as an intruder.

Claims 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nayar and Gabriel as applied to claim 14 above, and further in view of US Patent 5,686,975 to Baker.

[claim 26].

Nayar and Gabriel teach the apparatus of claim 14. Nayar suggests the use of the method for teleconferencing (Col 1 Line 26). Nayar and Gabriel do not teach detecting a location of a sound source in the image scene; and adjusting the perspective viewing window based on the detected location of the sound source.

Baker discloses a teleconferencing imaging system that includes a panoramic imaging means including an audio detection circuit that can locate the source of a sound and image it (Abstract). Therefore, at the time the invention was made it was well known in the art, that imaging the source of a sound was desired, thus it would have been obvious to one of ordinary skill in the art, to include the audio detection system disclosed by Baker into the imaging apparatus of Nayar and Gabriel for use with teleconferencing.

[claims 27 and 28]

At the time the invention was made, use of the internet for transmitting images was well known in the art. Once the image is processed as in the case of the current invention, data is data, therefore it doesn't matter that the image came from an omni-directional imaging means. Never the less, while Nayar and Gabriel are silent on use of

the Internet, Baker teaches that teleconferencing involves transmitting both the audio and video data to a remote site for viewing (Col 1 Lines 16-17).

Since teleconferencing implies use of the phone system, and access to the internet is achieved via the phone network, it would have been obvious to one of ordinary skill in the art to transmit the image via a server or any computer capable of handling the job in order to provide a suitable teleconferencing system.

[claim 29]

The imaging apparatus of claim 31, further comprising: a remote display coupled to the image sensor; a first speaker and first microphone coupled to the image sensor; and a second speaker and second microphone coupled to the remote display, wherein the first and second speakers and first and second microphone form a two-way transmission link between the image sensor and the remote display. (Teleconferencing is a two way transmission link.)

Claims 30-38 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nayar and Gabriel in view of US Patent 6,226,035 to Korein.

[claim 30]

Nayar and Gabriel teach the apparatus of claim 14. While it is unclear as to what shape Nayar's reflector is, i.e. the equation that defines it is not that of a parabola nor a sphere, it does resemble that of a hyperbola and it satisfies the single viewpoint limitation see Nayar column 9 lines 49-53, never the less at the time the invention was made, as admitted by the applicant in his own specification, it was well known in the art that a hyperbolic could be used to view a panoramic scene from a single viewpoint, and

has already been in use for such an application, see Korein column 9 line 59 wherein he teaches the use of a hyperbolic mirror.

Therefore at the time the invention was made, it would have been obvious to one of ordinary skill in the art to use a hyperbolic mirror in the invention of Nayar and Gabriel since the single viewpoint constraint is satisfied using a hyperbolic mirror.

[Claims 31, 38 and 44].

Nayar teaches an imaging apparatus for generating a two dimensional image, comprising:

A reflective mirror configured to satisfy an optical single viewpoint constraint for reflecting an image scene (Col 9 Lines 49-53).

An image sensor responsive to said reflective mirror and that generates two dimensional image data signals to obtain an omnidirectional image on an image plane (Col 7 Lines 62-65 and Col 10 Lines 56-65); and

A controller coupled to the image sensor, wherein the controller defines a perspective viewing window (Col 9 Line 63-Col 10 Line 19). Nayar further teaches the mapping of each pixel in the perspective window with a corresponding pixel value in the omindirectional image on the image plane using the configuration parameters (Col 10 Line 55-Col 11 Line 55 and Col 12 Line 25-35). Nayar further teaches the required transformations (zoom, pan) of the hemispherical scene to produce an image from a view point (Col 9 Lines 31-64, Fig 6). Nayar further teaches the use of a computer which is well known to contain memory (Fig. 1A item 125). Nayar does not specifically teach the memory for storing a mapping matrix for each of a plurality of sets of said

configuration parameters in a parameter space, said controller using a said mapping matrix to perform mapping of pixels from said omindirectional image into said perspective viewing window.

Gabriel teaches the use of matrices to perform transformations such as translation, contraction, expansion, rotation and perspective projection (Col 4 Lines 19-30, Col 7 Lines 5-64). Gabriel further teaches a complex transformation can be produced from the product of simpler ones Col 6 Lines 29-34). It would have been obvious to one of ordinary skill in the art at the time of the invention to store the matrices of Gabriel in the memory of Nayar in order to perform a transformation without processor intensive calculations.

While it is unclear as to what shape Nayar's reflector is, i.e. the equation that defines it is not that of a parabola nor a sphere, it does resemble that of a hyperbola and it satisfies the single viewpoint limitation see Nayar column 9 lines 49-53, never the less at the time the invention was made, as admitted by the applicant in his own specification, it was well known in the art that a hyperbolic could be used to view a panoramic scene from a single viewpoint, and has already been in use for such an application, see Korein column 9 line 59 wherein he teaches the use of a hyperbolic mirror.

Therefore at the time the invention was made, it would have been obvious to one of ordinary skill in the art to use a hyperbolic mirror in the invention of Nayar and Gabriel since the single viewpoint constraint is satisfied using a hyperbolic mirror.

[claim 32]

Nayar further teaches the imaging apparatus of claim 31, wherein the reflective mirror creates a one-to-one correspondence between pixels in the omnidiredional image and pixels in the perspective viewing window. (Col 10 Lines 20-31.)

[claim 33]

Nayar further teaches the imaging apparatus of claim 31, wherein the controller maps the omnidirectional image to the perspective viewing window by mapping each pixel in the perspective viewing window with a corresponding pixel value in the omnidirectional image. (Col 12 Lines 25-34)

[claim 34]

Nayar further teaches the imaging apparatus of claim 14, wherein parameters defining the perspective viewing window include at least one of a zoom distance defined as the distance from the focal point of said reflective mirror to said window, a pan angle defined as the angle between the x axis and a line through the focal point of said reflective mirror perpendicular to the x-y plane and a tilt angle defined as the angle between the x-y plane and a vector normal to the perspective viewing window. (The Examiner is assuming that this claim was supposed to be dependent from claim 31 not 14. In either case see (See Nayar column 10 lines 55-65).

[claim 35]

Nayar further teaches the imaging apparatus of claim 34, further comprising a user interface through which a user enters data corresponding to at least one of a desired zoom distance, pan angle, or tilt angle. (Col 7 lines 62-65)

[claim 36]

Nayar further teaches the imaging apparatus of claim 31, wherein the controller generates a mapping matrix by applying a ray tracing algorithm to each pixel in the perspective viewing window to determine a corresponding reflection point on the reflective mirror and then projecting each reflection point to a focal point of the image sensor to determine the corresponding location on the omni directional image. (Figs. 4, 5 and 6)

[claim 37]

Nayar further teaches the imaging apparatus of claim 31, wherein the perspective viewing window is a panoramic viewing window. (Col 11 lines 25-30)

Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nayar, Gabriel and Korein as applied to claim 31 above, and further in view of US Patent 5,790,181 to Chahl et al. and US Patent 3,988,533 to Mick et al.

[claim 39]

Nayar, Gabriel and Korein teach the apparatus of claim 31 as shown above. Nayar and Gabriel further teaches the use of the system for surveillance purposes (Nayar: Col 1 Lines 25-30, Gabriel: Abstract). Nayar and Gabriel do not teach the use of motion detection.

Chahl, while he is not specific as to his motion detection means, clearly teaches that motion detection can be done in a panoramic surveillance system (Col 6 Lines 25-32). However, he does not specify how he does his motion detection. However, at the time the invention was made, it was well known in the art of surveillance, that in order to detect video motion, the conventional way was to compare subsequent video images

and if a large enough difference in the images is detected, it is considered motion. As proof of the Examiners statements he includes Mick, see abstract.

Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art, to include motion detection capabilities of Chahl and Mick in the system of Nayar, Gabriel, and Korein in order to adapt it for use in the surveillance application as Nayar says it can be used for.

[claim 40]

Chahl further teaches the use of activating an alarm if at least a portion of the residual image exceeds a predetermined threshold (Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the alarm activating method of Chahl in order to notify security of an anomaly such as an intruder.

Claims 41-43 are rejected under 35 U.S.C. 1O3(a) as being unpatentable over Nayar, Gabriel and Korein as applied to claim 31 above, and further in view of US Patent 5,686,975 to Baker.

[claim 41].

Nayar, Gabriel, and Korein teach the apparatus of claim 31. Nayar suggests the use of the method for teleconferencing (Col 1 Line 26). Nayar and Gabriel do not teach detecting a location of a sound source in the image scene; and adjusting the perspective viewing window based on the detected location of the sound source.

Baker discloses a teleconferencing imaging system that includes a panoramic imaging means including an audio detection circuit that can locate the source of a sound and image it (Abstract). Therefore, at the time the invention was

made it was well known in the art, that imaging the source of a sound was desired, thus it would have been obvious to one of ordinary skill in the art, to include the audio detection system disclosed by Baker into the imaging apparatus of Nayar, Gabriel and Korein for use with teleconferencing.

[claim 42]

At the time the invention was made, use of the internet for transmitting images was well known in the art. Once the image is processed as in the case of the current invention, data is data, therefore it doesn't matter that the image came from an omni-directional imaging means. Never the less, while Nayar, Gabriel and Korein are silent on the use of the Internet, Baker teaches that teleconferencing involves transmitting both the audio and video data to a remote site for viewing (Col 1 Lines 16-17).

Since teleconferencing implies use of the phone system, and access to the internet is achieved via the phone network, it would have been obvious to one of ordinary skill in the art to transmit the image via a server or any computer capable of handling the job in order to provide a suitable teleconferencing system.

[claim 43]

The imaging apparatus of claim 31, further comprising: a remote display coupled to the image sensor; a first speaker and first microphone coupled to the image sensor; and a second speaker and second microphone coupled to the remote display, wherein the first and second speakers and first and second microphone form a two-way transmission link between the image sensor and the remote display. (Teleconferencing is a two way transmission link.)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 571-272-7338. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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